infarction, stroke and angina were estimated to be CAD20,372, CAD36,356 and CAD3,480, respectively. Costs in subsequent years were CAD1304, CAD9587 and CAD1623, respectively. Congestive heart failure costs were estimated to be CAD2232. First year costs of end-stage renal disease (ESRD) ranged between CAD53,046 and CAD 95,550 depending on the type of dialysis. In subsequent years, ESRD costs were in the range CAD31,356 to 147,225. Major costs associated with neuropathy and foot ulcer complications included CAD1,140 for uninfected foot ulcer, CAD2,387 for infected ulcer, CAD8,529 for treatment of gangrene and CAD26,875 for amputation. **CONCLUSIONS:** Cost data are available in Canada, but no published data were identified for Australia. These data are of central importance to modeling groups to allow the simulation of the long-term costs associated with diabetes and its complications, as well as the cost-effectiveness of treatments for this disease.

PDB20

COMPARISON OF THE COST TO REACH A1C TARGETS IN PATIENTS WITH TYPE-2 DIABETES MELLITUS ON ORAL ANTIDIABETIC AGENTS AND EITHER BIPHASIC INSULIN ASPART 70/30 OR INSULIN GLARGINE

Cobden D[1], Allen E[1], Botteman M[2]

[1]Novo Nordisk Inc, Princeton, NJ, USA; [2]PharMerit, Bethesda, MD, USA

OBJECTIVE: To evaluate the annual direct pharmacy costs-per-patient for reaching the goal of an A1C of < 7.0% and ≤6.5% among patients with type-2 diabetes using oral antidiabetic agents (OADs) and either biphasic insulin aspart 70/30 (BIAsp 70/30) or glargine. **METHODS:** Data from a recent clinical study (INITIATE) demonstrated that over a 28-week period, significantly more insulin-naïve, type-2 subjects previously treated with OADs reached the American Diabetes Association target of A1C <7.0% with twice-daily BIAsp 70/30 + metformin (met) ± thiazolidinedione (TZD) compared to bedtime insulin glargine + met ±TZD (66% vs. 40%; p = 0.0002). Likewise, a statistically significant difference favoring BIAsp 70/30 was observed when assessing the two cohorts against the International Diabetes Federation target of A1C ≤6.5% (42% vs. 28%; p = 0.0356). The annual direct pharmacy costs for the insulins, metformin, and TZD (pioglitazone) were calculated using published AWP cost data within the US. **RESULTS:** Cost calculations were based on end-of-study mean daily medication doses of 0.82 IU/kg BIAsp 70/30 (mean weight: 95.7 kg), 0.55 IU/kg glargine (mean weight: 93.8 kg), 1500 mg metformin, and 30 mg pioglitazone for subjects treated with TZD (32% in each arm). The mean costs-per-patient reaching A1C values of <7.0% were $5295 with BIAsp 70/30 and $6850 with glargine, and $8321 and $9786, respectively, for subjects reaching ≤6.5%. **CONCLUSION:** The mean annual direct pharmacy costs-per-patient were considerably lower using BIAsp 70/30 compared to glargine, indicating that BIAsp 70/30 is a better investment of health care dollars when aiming to bring type-2 patients to better control at clinically endorsed A1C targets.

PDB21

HEALTH CARE RESOURCE UTILIZATION AND COST IN TYPE-2 DIABETES PATIENTS RECEIVING COMBINATION SULFONYLUREA (SU) AND ROSIGLITAZONE (RSG): THE RESULT TRIAL

Herman WH[1], Horblyuk R[2], Arondekar B[2], O'Neill MC[3], Kravitz B[3], Heise MA[3], Freed MI[3]

[1]Michigan Diabetes Research and Training Center, Ann Arbor, MI, USA; [2]GlaxoSmithKline, Philadelphia, PA, USA; [3]GlaxoSmithKline, King of Prussia, PA, USA

The prevalence and cost of type-2 diabetes is significant in elderly patients. Improved glycemic control may be associated with better health outcomes and lower cost. **OBJECTIVE:** To analyze health care resource use and estimate cost of care over a two-year period in elderly patients (>60 years) with type-2 diabetes receiving treatment with rosiglitazone (RSG) plus sub-maximal sulfonylurea (SU) combination therapy (n = 115) or progressive uptitration of the SU, glipizide (GLIP), (n = 110) in the Rosiglitazone Early vs. Sulfonylurea Titration (RESULT) clinical trial. **METHODS:** Treatment was individualized, targeting ADA defined goals, as appropriate, with uptitration required for FPG >180 mg/dL to a max of glipizide 20 mg bid and RSG 4 mg bid. Patient self-reported hospitalizations, emergency room (ER) visits, and physician visits were prospectively collected for the duration of the trial. Health care utilization rates were reported and analyzed as rates per 1000 patient-days using Poisson regression models. National average unit costs were applied to estimate total direct medical cost, where appropriate costs were adjusted for the duration of therapy and expressed as cost per patient per month (PPPM). **RESULTS:** By the end of two years, disease progression (time to reach confirmed FPG ≥ d 180 mg/dl) was observed in only two patients (1.7%) randomized to RSG + GLIP, compared to 27 patients (24.3%) taking GLIP alone (p < 0.0001). In comparison with patients in the GLIP group, patients in the RSG + GLIP group had significantly fewer ER visits (p = 0.0006) and hospitalizations (p = 0.0263). There were no statistically significant differences in unscheduled physician office visits between the two treatment groups. Average PPPM costs were significantly lower for the RSG + GLIP group ($480) compared to the GLIP monotherapy group ($644) (p < 0.05). **CONCLUSION:** The addition of RSG to SU therapy was associated with a decreased use of medical resources, in particular hospitalizations and ER visits, and resulted in significant cost savings.

PDB22

LONG-TERM COST-EFFECTIVENESS OF INSULIN ASPART VERSUS SOLUBLE HUMAN INSULIN IN PATIENTS WITH TYPE 1 DIABETES IN THE UNITED KINGDOM

Minshall ME[1], Twena NS[2], Nicklasson L[3], Roze S[4]

[1]CORE-Center for Outcomes Research, Fishers, IN, USA; [2]Novo Nordisk Ltd, Crawley, West Sussex, UK; [3]Novo Nordisk Inc, Princeton, NJ, USA; [4]CORE-Center for Outcomes Research, Binningen, Basel, Switzerland

OBJECTIVES: A clinical trial showed that intensive therapy with the rapid-acting insulin analogue insulin aspart (IAsp) was superior to soluble human insulin (SHI), both combined with NPH insulin as basal insulin, with respect to improving glycaemic control (baseline-adjusted difference in HbA_{1c} of –0.12%, p < 0.02). We investigated how this small but significant difference, together with other clinical parameters, would affect the long-term complications associated with diabetes, health care costs and cost-effectiveness in the UK setting. **METHODS:** The published and validated CORE Diabetes Model was used to predict long-term complications, improvements in life years gained (LYG), quality-adjusted life years (QALYs) gained, long-term costs and cost-effectiveness for IAsp versus SHI. Standard Markov/Monte Carlo simulation techniques were used to describe the incidence and progression of complications. Probabilities of complications and HbA_{1c}-dependent adjustments were derived from the DCCT, other major clinical trials and population-based studies. Clinical inputs were taken from a six-month multinational, open-label, parallel-group trial in type-1 diabetes patients. Costs of treating complications in the UK (inflated to 2004 costs) and utility values were obtained from published

sources. Direct costs of diabetes complications and drug treatment were projected over patients' lifetimes from a UK National Health Service perspective. Both costs and QALYs were discounted at 3.5% p.a. Sensitivity analyses were performed. **RESULTS:** The model projected that treatment with IAsp would result in an additional 0.08 LYG and 0.09 QALYs per patient. Total lifetime costs/patient were estimated to increase by £419. The cost/LYG was calculated to be £5430 and cost/QALY £4825. **CONCLUSION:** The model predicted that treatment with insulin aspart would result in long-term improvements in health outcomes and quality of life compared to soluble human insulin in patients with type-1 diabetes. The cost-effectiveness result is well within the range considered to represent good value for money in the UK.

PDB23

EVALUATION OF THE IMPACT ON THE EQ5D$_{INDEX}$ (HEATH-RELATED UTILITY) OF CONVERSION TO INSULIN GLARGINE (LANTUS) FOLLOWING FAILURE ON ORAL AGENTS IN PEOPLE WITH TYPE-2 DIABETES: INTERIM ANALYSIS

Peters JR[1], Morrissey M[2], Morgan CL[2], Piper E[3], Sharplin P[4], Currie CJ[2]

[1]University Hospital of Wales, Cardiff, UK; [2]Cardiff University, Cardiff, UK; [3]Sanofi-Aventis, Kent, UK; [4]Sanofi-Aventis, Auckland, New Zealand

OBJECTIVE: In their evaluation of the cost effectiveness of insulin glargine, NICE included an assumption that switching to insulin would result in decreased health utility (8%). This altered notably any resulting cost-utility ratios. The purpose of this study was to test this hypothesis. **METHODS:** The design was a before-and-after study for type-2 patients who required switching to insulin. All followed an algorithm to achieve fasting and post-prandial blood glucose targets. Outcome measures included a measure of utilit (EQ5D$_{index}$) at baseline, three-months and six-months. This report was a preliminary analysis of the first 48 subjects, of which 32 had completed 12 weeks and 26 had completed the full 24-week study. **RESULTS:** Of the 26 subjects, 21 (81%) remained on glargine with or without OHAs, two required additional pre-meal boluses, and three required twice-daily pre-mixtures. The mean (SD) EQ5D$_{index}$ at baseline was 0.655 (0.275; $n = 24$), at three-months 0.637 (0.333; Δ vs. baseline NS) and at six-months 0.710 (0.319; Δ vs. baseline NS). At three-months, six patients had worse utility and six better utility, while 12 reported no change. At six-months, four patients had worse utility after switching, and 11 had better utility, the remaining nine subjects reported no change. Over the six-months, mean BMI increased from 29.4 to 30.0 kg/m^2 ($n = 23$, $p < 0.001$) and mean HbA1c decreased from 10.1% to 7.8% ($n = 23$, $p < 0.001$). Mean daily insulin dose at six-months was 61.6 units (range 24 to 178). **CONCLUSIONS:** This is a limited but important interim analysis. The hypothesis that switching to insulin–here insulin glargine—resulted in a notable decrease in utility (quality of life) was rejected, with a trend for a clinically meaningful improvement in utility. Economic evaluations should, therefore, exclude this assumption. This observation is not necessarily generalisable to all insulin regimens.

PDB24

ECONOMIC IMPACT OF CARDIOVASCULAR CO-MORBIDITY IN PATIENTS WITH TYPE-2 DIABETES

Mody R[1], Kalsekar I[2], Kavookjian J[1], Iyer S[3], Rajagopalan R[3], Pawar V[1]

[1]West Virginia University, Morgantown, WV, USA; [2]Butler University, Indianapolis, IN, USA; [3]Takeda Pharmaceuticals North America, Inc, Lincolnshire, IL, USA

OBJECTIVES: To evaluate the impact of cardiovascular co-morbidity on total and diabetes-related health care costs in patients with type-2 diabetes. **METHODS:** Retrospective analysis of a state Medicaid claims data was conducted in patients with type-2 diabetes identified using ICD-9 diagnosis codes (250.0×–250.9×, where x = 0 or two) in the year 2001. Patients ≥65 years or those with managed care coverage were excluded. Presence of cardiovascular co-morbidity in the year 2001 was identified using appropriate ICD-9 codes. Semi-logarithmic OLS models were used to estimate the impact of cardiovascular co-morbidity on total and diabetes-related health care costs in year 2002, controlling for demographic characteristics (age, gender, race, and urban/rural location), presence of peripheral vascular conditions, cerebrovascular conditions, hypertension, hyperlipidemia, and other co-morbid conditions. Two-part models were used for estimating the impact of cardiovascular co-morbidity on specific costs such as ER/hospitalization, outpatient and prescription. Smearing estimates were used to interpret the results from the semi-logarithmic models. **RESULTS:** Presence of cardiovascular co-morbidity had a significant impact on all categories of total and diabetes-related health care costs, except diabetes-related prescription drug costs. Type-2 diabetes patients with cardiovascular co-morbidity had significantly higher total health care costs (38.9%, $12,550 vs. $9,031), ER/hospitalization costs (239.8%, $4,845 vs. $1,426), outpatient costs (35.3%, $3,956 vs. $2,925) and prescription drug costs (15.1%, $4,686 vs. $4,071) compared to those without cardiovascular co-morbidity. Similarly, type-2 diabetes patients with cardiovascular co-morbidity had significantly higher diabetes-related total health care costs (59.7%, $4349 vs. $2724), ER/hospitalization costs (346.8%, $1911 vs. $428) and outpatient costs (17.4%, $740 vs. $631) compared to patients without cardiovascular co-morbidity. **CONCLUSIONS:** Presence of cardiovascular co-morbidity in patients with type-2 diabetes significantly increases total and diabetes-related health care costs, with ER/hospitalization costs accounting for the highest percentage increase.

PDB25

DEPRESSION IN PATIENTS WITH TYPE-2 DIABETES: IMPACT ON UTILIZATION PATTERNS AND ADHERENCE TO ORAL HYPOGLYCEMIC AGENTS

Kalsekar I[1], Madhavan SM[2], Amonkar M[3], Douglas S[2], Makela E[2], Scott V[2]

[1]Butler University, Indianapolis, IN, USA; [2]West Virginia University, Morgantown, WV, USA; [3]GlaxoSmithKline, Collegeville, PA, USA

OBJECTIVE: To examine the impact of pre-existing depression on utilization patterns and adherence to oral hypoglycemic agents (OHAs) in patients newly diagnosed with type-2 diabetes. **METHODS:** Newly diagnosed type-2 diabetes patients during the three-year period (1998–2000) were identified from a Medicaid claims database. Presence of pre-existing depression was determined on the basis of ICD-9 CM codes for depression. Utilization patterns (switching, augmentation) and adherence to OHAs were computed for a 12-month follow up period from the date of the index OHA prescription. A multivariate framework was used to estimate the impact of depression on utilization patterns and adherence, controlling for confounders such as demographics, co-morbidity, diabetes severity, regimen complexity, and interaction with health care providers. **RESULTS:** A total of 1326 newly diagnosed type-2 diabetes patients were identified (depressed = 471; non-depressed = 855). A significantly higher number of depressed patients (23.3%) switched or augmented therapy as compared to non-depressed patients (16.2%). Results of a multinomial logit model indicated that controlling for covariates, patients with depression were 1.7 times more likely to switch (p = 0.046) and two times more likely to augment